Projector
# CP-X444/CP-X440
## User's Manual – Operating Guide
## Technical

Example of computer signal

| Resolution (H x V) | H. frequency (kHz) | V. frequency (Hz) | Rating | Signal mode |
|---|---|---|---|---|
| 720 x 400 | 37.9 | 85.0 | VESA | TEXT |
| 640 x 480 | 31.5 | 59.9 | VESA | VGA (60Hz) |
| 640 x 480 | 37.9 | 72.8 | VESA | VGA (72Hz) |
| 640 x 480 | 37.5 | 75.0 | VESA | VGA (75Hz) |
| 640 x 480 | 43.3 | 85.0 | VESA | VGA (85Hz) |
| 800 x 600 | 35.2 | 56.3 | VESA | SVGA (56Hz) |
| 800 x 600 | 37.9 | 60.3 | VESA | SVGA (60Hz) |
| 800 x 600 | 48.1 | 72.2 | VESA | SVGA (72Hz) |
| 800 x 600 | 46.9 | 75.0 | VESA | SVGA (75Hz) |
| 800 x 600 | 53.7 | 85.1 | VESA | SVGA (85Hz) |
| 832 x 624 | 49.7 | 74.5 | | Mac 16" mode |
| 1024 x 768 | 48.4 | 60.0 | VESA | XGA (60Hz) |
| 1024 x 768 | 56.5 | 70.1 | VESA | XGA (70Hz) |
| 1024 x 768 | 60.0 | 75.0 | VESA | XGA (75Hz) |
| 1024 x 768 | 68.7 | 85.0 | VESA | XGA (85Hz) |
| 1152 x 864 | 67.5 | 75.0 | VESA | SXGA (75Hz) |
| 1280 x 960 | 60.0 | 60.0 | VESA | SXGA (60Hz) |
| 1280 x 1024 | 64.0 | 60.0 | VESA | SXGA (60Hz) |
| 1280 x 1024 | 80.0 | 75.0 | VESA | SXGA (75Hz) |
| 1280 x 1024 | 91.1 | 85.0 | VESA | SXGA (85Hz) |
| 1600 x 1200 | 75.0 | 60.0 | VESA | UXGA (60Hz) |

**NOTE**   • Be sure to check jack type, signal level, timing and resolution before connecting this projector to a computer.
• Some computers may have multiple display screen modes. Use of some of these modes will not be possible with this projector.
• Depending on the input signal, full-size display may not be possible in some cases. Refer to the number of display pixels above.
• Although the projector can display signals with resolution up to UXGA (1600x1200), the signal will be converted to the projector's panel resolution before being displayed. The best display performance will be achieved if the resolutions of the input signal and projector panel are identical.
• Automatically adjustment may not function correctly with some input signals.
• The image may not be displayed correctly when the input sync signal is a composite sync or a sync on G.

## Initial set signals

The following signals are used for the initial settings. The signal timing of some computer models may be different. In such case, adjust the items V POSITION and H POSITION in the IMAGE menu.
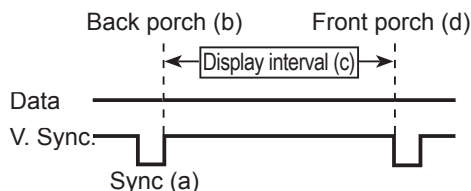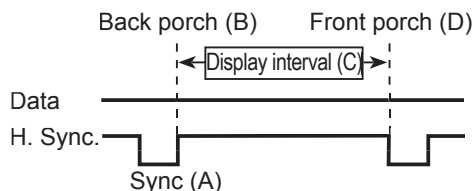


| Computer/ Signal | Horizontal signal timing (μs) | | | | Computer/ Signal | Vertical signal timing (lines) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | (A) | (B) | (C) | (D) | | (a) | (b) | (c) | (d) |
| TEXT | 2.0 | 3.0 | 20.3 | 1.0 | TEXT | 3 | 42 | 400 | 1 |
| VGA (60Hz) | 3.8 | 1.9 | 25.4 | 0.6 | VGA (60Hz) | 2 | 33 | 480 | 10 |
| VGA (72Hz) | 1.3 | 3.8 | 20.3 | 1.0 | VGA (72Hz) | 3 | 28 | 480 | 9 |
| VGA (75Hz) | 2.0 | 3.8 | 20.3 | 0.5 | VGA (75Hz) | 3 | 16 | 480 | 1 |
| VGA (85Hz) | 1.6 | 2.2 | 17.8 | 1.6 | VGA (85Hz) | 3 | 25 | 480 | 1 |
| SVGA (56Hz) | 2.0 | 3.6 | 22.2 | 0.7 | SVGA (56Hz) | 2 | 22 | 600 | 1 |
| SVGA (60Hz) | 3.2 | 2.2 | 20.0 | 1.0 | SVGA (60Hz) | 4 | 23 | 600 | 1 |
| SVGA (72Hz) | 2.4 | 1.3 | 16.0 | 1.1 | SVGA (72Hz) | 6 | 23 | 600 | 37 |
| SVGA (75Hz) | 1.6 | 3.2 | 16.2 | 0.3 | SVGA (75Hz) | 3 | 21 | 600 | 1 |
| SVGA (85Hz) | 1.1 | 2.7 | 14.2 | 0.6 | SVGA (85Hz) | 3 | 27 | 600 | 1 |
| Mac 16" mode | 1.1 | 3.9 | 14.5 | 0.6 | Mac 16" mode | 3 | 39 | 624 | 1 |
| XGA (60Hz) | 2.1 | 2.5 | 15.8 | 0.4 | XGA (60Hz) | 6 | 29 | 768 | 3 |
| XGA (70Hz) | 1.8 | 1.9 | 13.7 | 0.3 | XGA (70Hz) | 6 | 29 | 768 | 3 |
| XGA (75Hz) | 1.2 | 2.2 | 13.0 | 0.2 | XGA (75Hz) | 3 | 28 | 768 | 1 |
| XGA (85Hz) | 1.0 | 2.2 | 10.8 | 0.5 | XGA (85Hz) | 3 | 36 | 768 | 1 |
| 1152 x 864 (75Hz) | 1.2 | 2.4 | 10.7 | 0.6 | 1152 x 864 (75Hz) | 3 | 32 | 864 | 1 |
| 1280 x 960 (60Hz) | 1.0 | 2.9 | 11.9 | 0.9 | 1280 x 960 (60Hz) | 3 | 36 | 960 | 1 |
| 1280 x 1024 (60Hz) | 1.0 | 2.3 | 11.9 | 0.4 | 1280 x 1024 (60Hz) | 3 | 38 | 1024 | 1 |
| 1280 x 1024 (75Hz) | 1.1 | 1.8 | 9.5 | 0.2 | 1280 x 1024 (75Hz) | 3 | 37 | 1024 | 2 |
| 1280 x 1024 (85Hz) | 1.0 | 1.4 | 8.1 | 0.4 | 1280 x 1024 (85Hz) | 3 | 44 | 1024 | 1 |
| 1600 x 1200 (60Hz) | 1.2 | 1.9 | 9.9 | 0.4 | 1600 x 1200 (60Hz) | 3 | 46 | 1200 | 1 |

## Connection to the ports
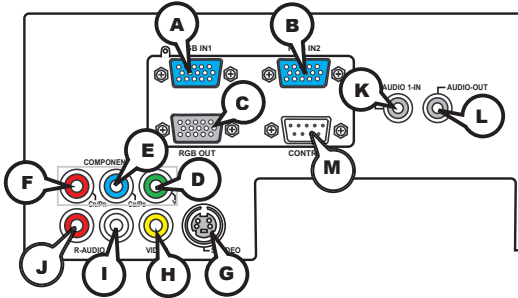


### ⒜RGB IN 1, ⒝RGB IN 2, ⒞RGB OUT

D-sub 15pin mini shrink jack

• Video signal: RGB separate, Analog, 0.7Vp-p,

75Ω terminated (positive)

• H/V. sync. Signal: TTL level (positive/negative)

• Composite sync. Signal: TTL level
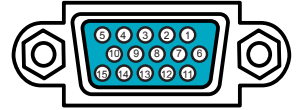


|          At RGB signal           |          At component video signal          |

| Pin | Signal |
|-----|--------|
| 1 | Video Red |
| 2 | Video Green |
| 3 | Video Blue |
| 4 | (No connection) |
| 5 | Ground |
| 6 | Ground Red |
| 7 | Ground Green |
| 8 | Ground Blue |
| 9 | (No connection) |
| 10 | Ground |
| 11 | (No connection) |
| 12 | ⒜: SDA (DDC data), ⒝/⒞ : (No connection) |
| 13 | H. sync / Composite sync. |
| 14 | V. sync. |
| 15 | ⒜: SCL (DDC clock), ⒝/⒞ : (No connection) |

| Pin | Signal |
|-----|--------|
| 1 | $C_R/P_R$ |
| 2 | Y |
| 3 | $C_B/P_B$ |
| 4 | (No connection) |
| 5 | Ground |
| 6 | $C_R/P_R$ Ground |
| 7 | Y Ground |
| 8 | $C_B/P_B$ Ground |
| 9 | (No connection) |
| 10 | Ground |
| 11 ⟨ 15 | (No connection) |

* except for RGB OUT.

## COMPONENT VIDEO ⒟Y, ⒠C$_B$/P$_B$, ⒡C$_R$/P$_R$

RCA jack x3

• System: 525i(480i), 525p(480p), 625i(576i), 750p(720p), 1125i(1080i)

| Port | Signal |
|------|--------|
| Y | Component video Y, 1.0±0.1Vp-p, 75Ω terminator with composite |
| C$_B$/P$_B$ | Component video C$_B$/P$_B$, 0.7±0.1Vp-p, 75Ω terminator |
| C$_R$/P$_R$ | Component video C$_R$/P$_R$, 0.7±0.1Vp-p, 75Ω terminator |

## ⒢S-VIDEO

Mini DIN 4pin jack



| Pin | Signal |
|-----|--------|
| 1 | Color signal 0.286Vp-p (NTSC, burst), 75Ω terminator<br>Color signal 0.300Vp-p (PAL/SECAM, burst) 75Ω terminator |
| 2 | Brightness signal, 1.0Vp-p, 75Ω terminator |
| 3 | Ground |
| 4 | Ground |

## ⒣VIDEO

RCA jack

• System: NTSC, PAL, SECAM, PAL-M, PAL-N, NTSC4.43, PAL60

• 1.0±0.1Vp-p, 75Ω terminator

4

## Ⓚ**AUDIO 1-IN (**∅3.5 stereo mini jack), Ⓘ Ⓙ**AUDIO 2 L/R (RCA jack)**

• 200mVrms(max.) 50kΩ termination

## Ⓛ**AUDIO OUT (**∅3.5 stereo mini jack)
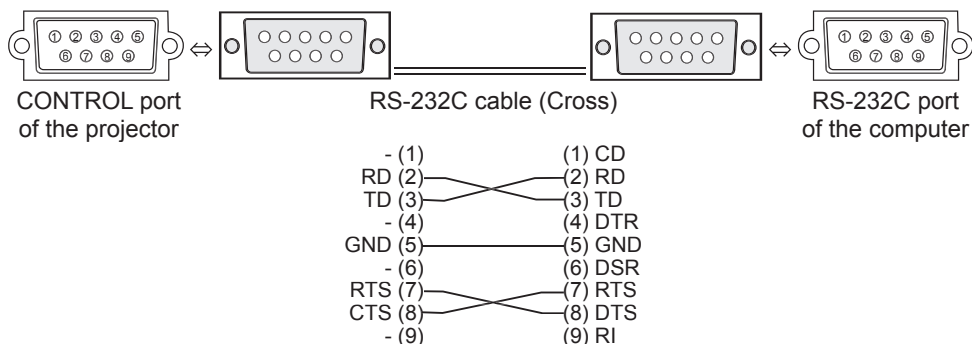
• 200mVrms(max.) 1kΩ output impedance

## Ⓜ**CONTROL**

D-sub 9pin plug
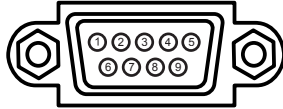


• About the details of RS-232C communication, please refer to the following page.

| Pin | Signal | Pin | Signal | Pin | Signal |
|---|---|---|---|---|---|
| 1 | (No connection) | 4 | (No connection) | 7 | RTS |
| 2 | RD | 5 | Ground | 8 | CTS |
| 3 | TD | 6 | (No connection) | 9 | (No connection) |

CONTROL port
of the projector

RS-232C cable (Cross)

RS-232C port
of the computer

```
   - (1)              (1) CD
RD (2)                (2) RD
TD (3)                (3) TD
   - (4)              (4) DTR
GND (5)               (5) GND
   - (6)              (6) DSR
RTS (7)               (7) RTS
CTS (8)               (8) DTS
   - (9)              (9) RI
```

## Connecting the cable

1. Turn off the projector and the computer.

2. Connect the CONTROL port of the projector with a RS-232C port of the computer by a RS-232C cable (cross). Use the cable that fulfills the specification shown in the previous page.

3. Turn the computer on, and after the computer has started up turn the projector on.

## Communications setting

19200bps, 8N1

### 1. Protocol

Consist of header (7 bytes) + command data (6 bytes).

### 2. Header

BE + EF + 03 + 06 + 00 + CRC_low + CRC_high
CRC_low : Lower byte of CRC flag for command data
CRC_high : Upper byte of CRC flag for command data

### 3. Command data

Command data chart

| byte_0 | byte_1 | byte_2 | byte_3 | byte_4 | byte_5 |
|--------|--------|--------|--------|--------|--------|
| Action | | Type | | Setting code | |
| low | high | low | high | low | high |

Action (byte_0 - 1)

| Action | Classification | Content |
|--------|---------------|---------|
| 1 | SET | Change setting to desired value. |
| 2 | GET | Read projector internal setup value. |
| 4 | INCREMENT | Increment setup value by 1. |
| 5 | DECREMENT | Decrement setup value by 1. |
| 6 | EXECUTE | Run a command. |

6

**Requesting projector status (Get command)**
(1) Send the request code Header + Command data ('02H'+'00H'+ type (2 bytes)+ '00H' +'00H') from the computer to the projector.
(2) The projector returns the response code '1DH'+ data (2 bytes) to the computer.

**Changing the projector settings (Set command)**
(1) Send the setting code Header + Command data ('01H'+'00H'+ type (2 bytes) + setting code (2 bytes)) from the computer to the projector.
(2) The projector changes the setting based on the above setting code.
(3) The projector returns the response code '06H' to the computer.

**Using the projector default settings (Reset Command)**
(1) The computer sends the default setting code Header + Command data ('06H'+ '00H' + type (2 bytes) +'00H'+'00H') to the projector.
(2) The projector changes the specified setting to the default value.
(3) The projector returns the response code '06H' to the computer.

**Increasing the projector setting value (Increment command)**
(1) The computer sends the increment code  Header + Command data ('04H'+ '00H'+ type (2 bytes) +'00H'+'00H') to the projector.
(2) The projector in creases the setting value on the above setting code.
(3) The projector returns the response code '06H' to the computer.

**Decreasing the projector setting value (Decrement command)**
(1) The computer sends the decrement code Header + Command data ('05H'+ '00H'+ type (2 bytes) +'00H' + '00H') to the projector.
(2) The projector decreases the setting value on the above setting code.
(3) The projector returns the response code '06H' to the computer.

**When the projector cannot understand the received command**
When the projector cannot understand the received command, the error code '15H' is sent back to the computer.
Sometimes the projector cannot properly receive the command. In such a case, the command is not executed and the error code '15H' is sent back to the computer. If this error code is returned, send the same command again.

**When the projector cannot execute the received command.**
When the projector cannot execute the received command, the error code '1cH' + 'xxxxH' is sent back to the computer. When the data length is greater than indicated by the data length code, the projector ignore the excess data code.
Conversely when the data length is shorter than indicated by the data length code, an error code will be returned to the computer.

NOTE • Operation cannot be guaranteed when the projector receives an undefined command or data.
• Provide an interval of at least 40ms between the response code and any other code.
• The projector outputs test data when the power supply is switched ON, and when the lamp is lit. Ignore this data.
• Commands are not accepted during warm-up.

| Names | Operation Type | | Header | | | Command Data | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | CRC | Action | Type | Setting Code |
| Power | Set | Turn off | BE EF | 03 | 06 00 | 2A D3 | 01 00 | 00 60 | 00 00 |
| | | Turn on | BE EF | 03 | 06 00 | BA D2 | 01 00 | 00 60 | 01 00 |
| | Get | | BE EF | 03 | 06 00 | 19 D3 | 02 00 | 00 60 | 00 00 |
| | (Example return) 00 00 (Off)     01 00 (On)     02 00 (Cool down) | | | | | | | | |
| Input Source | Set | RGB IN 1 | BE EF | 03 | 06 00 | FE D2 | 01 00 | 00 20 | 00 00 |
| | | RGB IN 2 | BE EF | 03 | 06 00 | 3E D0 | 01 00 | 00 20 | 04 00 |
| | | VIDEO | BE EF | 03 | 06 00 | 6E D3 | 01 00 | 00 20 | 01 00 |
| | | S-VIDEO | BE EF | 03 | 06 00 | 9E D3 | 01 00 | 00 20 | 02 00 |
| | | COMPONENT | BE EF | 03 | 06 00 | AE D1 | 01 00 | 00 20 | 05 00 |
| | Get | | BE EF | 03 | 06 00 | CD D2 | 02 00 | 00 20 | 00 00 |
| Error Status | Get | | BE EF | 03 | 06 00 | D9 D8 | 02 00 | 20 60 | 00 00 |
| | (Example return) 00 00 (Normal)     01 00 (Cover error)     02 00 (Fan error)     03 00 (Lamp error) 04 00 (Temp error)     05 00 (Air flow error)     06 00 (Lamp time error)     07 00 (Cool error) 08 00 (Filter error) | | | | | | | | |
| BRIGHTNESS | Get | | BE EF | 03 | 06 00 | 89 D2 | 02 00 | 03 20 | 00 00 |
| | Increment | | BE EF | 03 | 06 00 | EF D2 | 04 00 | 03 20 | 00 00 |
| | Decrement | | BE EF | 03 | 06 00 | 3E D3 | 05 00 | 03 20 | 00 00 |
| BRIGHTNESS Reset | Execute | | BE EF | 03 | 06 00 | 58 D3 | 06 00 | 00 70 | 00 00 |
| CONTRAST | Get | | BE EF | 03 | 06 00 | FD D3 | 02 00 | 04 20 | 00 00 |
| | Increment | | BE EF | 03 | 06 00 | 9B D3 | 04 00 | 04 20 | 00 00 |
| | Decrement | | BE EF | 03 | 06 00 | 4A D2 | 05 00 | 04 20 | 00 00 |
| CONTRAST Reset | Execute | | BE EF | 03 | 06 00 | A4 D2 | 06 00 | 01 70 | 00 00 |
| MODE | Set | NORMAL | BE EF | 03 | 06 00 | 23 F6 | 01 00 | BA 30 | 00 00 |
| | | CINEMA | BE EF | 03 | 06 00 | B3 F7 | 01 00 | BA 30 | 01 00 |
| | | DYNAMIC | BE EF | 03 | 06 00 | E3 F4 | 01 00 | BA 30 | 04 00 |
| | Get | | BE EF | 03 | 06 00 | 10 F6 | 02 00 | BA 30 | 00 00 |
| | (Example return) 00 00 (Normal)     01 00 (Cinema)     04 00 (Dynamic)     10 00 (Custom) | | | | | | | | |
| GAMMA | Set | #1 DEFAULT | BE EF | 03 | 06 00 | 07 E9 | 01 00 | A1 30 | 20 00 |
| | | #1 CUSTOM | BE EF | 03 | 06 00 | 07 FD | 01 00 | A1 30 | 10 00 |
| | | #2 DEFAULT | BE EF | 03 | 06 00 | 97 E8 | 01 00 | A1 30 | 21 00 |
| | | #2 CUSTOM | BE EF | 03 | 06 00 | 97 FC | 01 00 | A1 30 | 11 00 |
| | | #3 DEFAULT | BE EF | 03 | 06 00 | 67 E8 | 01 00 | A1 30 | 22 00 |
| | | #3 CUSTOM | BE EF | 03 | 06 00 | 67 FC | 01 00 | A1 30 | 12 00 |
| | Get | | BE EF | 03 | 06 00 | F4 F0 | 02 00 | A1 30 | 00 00 |

| Names | Operation Type | | Header | | | Command Data | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | CRC | Action | Type | Setting Code |
| User Gamma Pattern | Set | Off | BE EF | 03 | 06 00 | FB FA | 01 00 | 80 30 | 00 00 |
| | | 9 step gray scale | BE EF | 03 | 06 00 | 6B FB | 01 00 | 80 30 | 01 00 |
| | | 15 steps gray scale | BE EF | 03 | 06 00 | 9B FB | 01 00 | 80 30 | 02 00 |
| | | Ramp | BE EF | 03 | 06 00 | 0B FA | 01 00 | 80 30 | 03 00 |
| | | Get | BE EF | 03 | 06 00 | C8 FA | 02 00 | 80 30 | 00 00 |
| User Gamma Point 1 | | Get | BE EF | 03 | 06 00 | 08 FE | 02 00 | 90 30 | 00 00 |
| | | Increment | BE EF | 03 | 06 00 | 6E FE | 04 00 | 90 30 | 00 00 |
| | | Decrement | BE EF | 03 | 06 00 | BF FF | 05 00 | 90 30 | 00 00 |
| User Gamma Point 2 | | Get | BE EF | 03 | 06 00 | F4 FF | 02 00 | 91 30 | 00 00 |
| | | Increment | BE EF | 03 | 06 00 | 92 FF | 04 00 | 91 30 | 00 00 |
| | | Decrement | BE EF | 03 | 06 00 | 43 FE | 05 00 | 91 30 | 00 00 |
| User Gamma Point 3 | | Get | BE EF | 03 | 06 00 | B0 FF | 02 00 | 92 30 | 00 00 |
| | | Increment | BE EF | 03 | 06 00 | D6 FF | 04 00 | 92 30 | 00 00 |
| | | Decrement | BE EF | 03 | 06 00 | 07 FE | 05 00 | 92 30 | 00 00 |
| User Gamma Point 4 | | Get | BE EF | 03 | 06 00 | 4C FE | 02 00 | 93 30 | 00 00 |
| | | Increment | BE EF | 03 | 06 00 | 2A FE | 04 00 | 93 30 | 00 00 |
| | | Decrement | BE EF | 03 | 06 00 | FB FF | 05 00 | 93 30 | 00 00 |
| User Gamma Point 5 | | Get | BE EF | 03 | 06 00 | 38 FF | 02 00 | 94 30 | 00 00 |
| | | Increment | BE EF | 03 | 06 00 | 5E FF | 04 00 | 94 30 | 00 00 |
| | | Decrement | BE EF | 03 | 06 00 | 8F FE | 05 00 | 94 30 | 00 00 |
| User Gamma Point 6 | | Get | BE EF | 03 | 06 00 | C4 FE | 02 00 | 95 30 | 00 00 |
| | | Increment | BE EF | 03 | 06 00 | A2 FE | 04 00 | 95 30 | 00 00 |
| | | Decrement | BE EF | 03 | 06 00 | 73 FF | 05 00 | 95 30 | 00 00 |
| User Gamma Point 7 | | Get | BE EF | 03 | 06 00 | 80 FE | 02 00 | 96 30 | 00 00 |
| | | Increment | BE EF | 03 | 06 00 | E6 FE | 04 00 | 96 30 | 00 00 |
| | | Decrement | BE EF | 03 | 06 00 | 37 FF | 05 00 | 96 30 | 00 00 |
| User Gamma Point 8 | | Get | BE EF | 03 | 06 00 | 7C FF | 02 00 | 97 30 | 00 00 |
| | | Increment | BE EF | 03 | 06 00 | 1A FF | 04 00 | 97 30 | 00 00 |
| | | Decrement | BE EF | 03 | 06 00 | CB FE | 05 00 | 97 30 | 00 00 |
| COLOR TEMP | Set | LOW | BE EF | 03 | 06 00 | 6B F4 | 01 00 | B0 30 | 01 00 |
| | | MIDDLE | BE EF | 03 | 06 00 | 9B F4 | 01 00 | B0 30 | 02 00 |
| | | HIGH | BE EF | 03 | 06 00 | 0B F5 | 01 00 | B0 30 | 03 00 |
| | | CUSTOM | BE EF | 03 | 06 00 | 3B F8 | 01 00 | B0 30 | 10 00 |
| | | Get | BE EF | 03 | 06 00 | C8 F5 | 02 00 | B0 30 | 00 00 |
| COLOR TEMP GAIN R | | Get | BE EF | 03 | 06 00 | 34 F4 | 02 00 | B1 30 | 00 00 |
| | | Increment | BE EF | 03 | 06 00 | 52 F4 | 04 00 | B1 30 | 00 00 |
| | | Decrement | BE EF | 03 | 06 00 | 83 F5 | 05 00 | B1 30 | 00 00 |

| Names | Operation Type | | Header | | | Command Data | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | CRC | Action | Type | Setting Code |
| COLOR TEMP GAIN G | Get | | BE EF | 03 | 06 00 | 70 F4 | 02 00 | B2 30 | 00 00 |
| | Increment | | BE EF | 03 | 06 00 | 16 F4 | 04 00 | B2 30 | 00 00 |
| | Decrement | | BE EF | 03 | 06 00 | C7 F5 | 05 00 | B2 30 | 00 00 |
| COLOR TEMP GAIN B | Get | | BE EF | 03 | 06 00 | 8C F5 | 02 00 | B3 30 | 00 00 |
| | Increment | | BE EF | 03 | 06 00 | EA F5 | 04 00 | B3 30 | 00 00 |
| | Decrement | | BE EF | 03 | 06 00 | 3B F4 | 05 00 | B3 30 | 00 00 |
| COLOR TEMP OFFSET R | Get | | BE EF | 03 | 06 00 | 04 F5 | 02 00 | B5 30 | 00 00 |
| | Increment | | BE EF | 03 | 06 00 | 62 F5 | 04 00 | B5 30 | 00 00 |
| | Decrement | | BE EF | 03 | 06 00 | B3 F4 | 05 00 | B5 30 | 00 00 |
| COLOR TEMP OFFSET G | Get | | BE EF | 03 | 06 00 | 40 F5 | 02 00 | B6 30 | 00 00 |
| | Increment | | BE EF | 03 | 06 00 | 26 F5 | 04 00 | B6 30 | 00 00 |
| | Decrement | | BE EF | 03 | 06 00 | F7 F4 | 05 00 | B6 30 | 00 00 |
| COLOR TEMP OFFSET B | Get | | BE EF | 03 | 06 00 | BC F4 | 02 00 | B7 30 | 00 00 |
| | Increment | | BE EF | 03 | 06 00 | DA F4 | 04 00 | B7 30 | 00 00 |
| | Decrement | | BE EF | 03 | 06 00 | 0B F5 | 05 00 | B7 30 | 00 00 |
| COLOR | Get | | BE EF | 03 | 06 00 | B5 72 | 02 00 | 02 22 | 00 00 |
| | Increment | | BE EF | 03 | 06 00 | D3 72 | 04 00 | 02 22 | 00 00 |
| | Decrement | | BE EF | 03 | 06 00 | 02 73 | 05 00 | 02 22 | 00 00 |
| COLOR Reset | Execute | | BE EF | 03 | 06 00 | 80 D0 | 06 00 | 0A 70 | 00 00 |
| TINT | Get | | BE EF | 03 | 06 00 | 49 73 | 02 00 | 03 22 | 00 00 |
| | Increment | | BE EF | 03 | 06 00 | 2F 73 | 04 00 | 03 22 | 00 00 |
| | Decrement | | BE EF | 03 | 06 00 | FE 72 | 05 00 | 03 22 | 00 00 |
| TINT Reset | Execute | | BE EF | 03 | 06 00 | 7C D1 | 06 00 | 0B 70 | 00 00 |
| SHARPNESS | Get | | BE EF | 03 | 06 00 | F1 72 | 02 00 | 01 22 | 00 00 |
| | Increment | | BE EF | 03 | 06 00 | 97 72 | 04 00 | 01 22 | 00 00 |
| | Decrement | | BE EF | 03 | 06 00 | 46 73 | 05 00 | 01 22 | 00 00 |
| SHARPNESS Reset | Execute | | BE EF | 03 | 06 00 | C4 D0 | 06 00 | 09 70 | 00 00 |
| PROGRESSIVE | Set | TURN OFF | BE EF | 03 | 06 00 | 4A 72 | 01 00 | 07 22 | 00 00 |
| | | TV | BE EF | 03 | 06 00 | DA 73 | 01 00 | 07 22 | 01 00 |
| | | FILM | BE EF | 03 | 06 00 | 2A 73 | 01 00 | 07 22 | 02 00 |
| | Get | | BE EF | 03 | 06 00 | 79 72 | 02 00 | 07 22 | 00 00 |
| MY MEMORY Load | Set | 1 | BE EF | 03 | 06 00 | 0E D7 | 01 00 | 14 20 | 00 00 |
| | | 2 | BE EF | 03 | 06 00 | 9E D6 | 01 00 | 14 20 | 01 00 |
| | | 3 | BE EF | 03 | 06 00 | 6E D6 | 01 00 | 14 20 | 02 00 |
| | | 4 | BE EF | 03 | 06 00 | FE D7 | 01 00 | 14 20 | 03 00 |
| MY MEMORY Save | Set | 1 | BE EF | 03 | 06 00 | F2 D6 | 01 00 | 15 20 | 00 00 |
| | | 2 | BE EF | 03 | 06 00 | 62 D7 | 01 00 | 15 20 | 01 00 |
| | | 3 | BE EF | 03 | 06 00 | 92 D7 | 01 00 | 15 20 | 02 00 |
| | | 4 | BE EF | 03 | 06 00 | 02 D6 | 01 00 | 15 20 | 03 00 |

| Names | Operation Type | | Header | | | CRC | Command Data | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Action | Type | Setting Code |
| ASPECT | Set | 4:3 | BE EF | 03 | 06 00 | 9E D0 | 01 00 | 08 20 | 00 00 |
| | | 16:9 | BE EF | 03 | 06 00 | 0E D1 | 01 00 | 08 20 | 01 00 |
| | | SMALL | BE EF | 03 | 06 00 | FE D1 | 01 00 | 08 20 | 02 00 |
| | | NORMAL | BE EF | 03 | 06 00 | 5E DD | 01 00 | 08 20 | 10 00 |
| | | Get | BE EF | 03 | 06 00 | AD D0 | 02 00 | 08 20 | 00 00 |
| OVER SCAN | | Get | BE EF | 03 | 06 00 | 91 70 | 02 00 | 09 22 | 00 00 |
| | | Increment | BE EF | 03 | 06 00 | F7 70 | 04 00 | 09 22 | 00 00 |
| | | Decrement | BE EF | 03 | 06 00 | 26 71 | 05 00 | 09 22 | 00 00 |
| OVER SCAN Reset | | Execute | BE EF | 03 | 06 00 | EC D9 | 06 00 | 27 70 | 00 00 |
| V POSITION | | Get | BE EF | 03 | 06 00 | 0D 83 | 02 00 | 00 21 | 00 00 |
| | | Increment | BE EF | 03 | 06 00 | 6B 83 | 04 00 | 00 21 | 00 00 |
| | | Decrement | BE EF | 03 | 06 00 | BA 82 | 05 00 | 00 21 | 00 00 |
| V POSITION Reset | | Execute | BE EF | 03 | 06 00 | E0 D2 | 06 00 | 02 70 | 00 00 |
| H POSITION | | Get | BE EF | 03 | 06 00 | F1 82 | 02 00 | 01 21 | 00 00 |
| | | Increment | BE EF | 03 | 06 00 | 97 82 | 04 00 | 01 21 | 00 00 |
| | | Decrement | BE EF | 03 | 06 00 | 46 83 | 05 00 | 01 21 | 00 00 |
| H POSITION Reset | | Execute | BE EF | 03 | 06 00 | 1C D3 | 06 00 | 03 70 | 00 00 |
| H PHASE | | Get | BE EF | 03 | 06 00 | 49 83 | 02 00 | 03 21 | 00 00 |
| | | Increment | BE EF | 03 | 06 00 | 2F 83 | 04 00 | 03 21 | 00 00 |
| | | Decrement | BE EF | 03 | 06 00 | FE 82 | 05 00 | 03 21 | 00 00 |
| H SIZE | | Get | BE EF | 03 | 06 00 | B5 82 | 02 00 | 02 21 | 00 00 |
| | | Increment | BE EF | 03 | 06 00 | D3 82 | 04 00 | 02 21 | 00 00 |
| | | Decrement | BE EF | 03 | 06 00 | 02 83 | 05 00 | 02 21 | 00 00 |
| H SIZE Reset | | Execute | BE EF | 03 | 06 00 | 68 D2 | 06 00 | 04 70 | 00 00 |
| AUTO ADJUST | | Execute | BE EF | 03 | 06 00 | 91 D0 | 06 00 | 0A 20 | 00 00 |
| COLOR SPACE | Set | AUTO | BE EF | 03 | 06 00 | 0E 72 | 01 00 | 04 22 | 00 00 |
| | | RGB | BE EF | 03 | 06 00 | 9E 73 | 01 00 | 04 22 | 01 00 |
| | | SMPTE240 | BE EF | 03 | 06 00 | 6E 73 | 01 00 | 04 22 | 02 00 |
| | | REC709 | BE EF | 03 | 06 00 | FE 72 | 01 00 | 04 22 | 03 00 |
| | | REC601 | BE EF | 03 | 06 00 | CE 70 | 01 00 | 04 22 | 04 00 |
| | | Get | BE EF | 03 | 06 00 | 3D 72 | 02 00 | 04 22 | 00 00 |
| COMPONENT | Set | COMPONENT | BE EF | 03 | 06 00 | 4A D7 | 01 00 | 17 20 | 00 00 |
| | | SCART RGB | BE EF | 03 | 06 00 | DA D6 | 01 00 | 17 20 | 01 00 |
| | | Get | BE EF | 03 | 06 00 | 79 D7 | 02 00 | 17 20 | 00 00 |
| VIDEO FORMAT | Set | AUTO | BE EF | 03 | 06 00 | 9E 75 | 01 00 | 00 22 | 0A 00 |
| | | NTSC | BE EF | 03 | 06 00 | FE 71 | 01 00 | 00 22 | 04 00 |
| | | PAL | BE EF | 03 | 06 00 | 6E 70 | 01 00 | 00 22 | 05 00 |
| | | SECAM | BE EF | 03 | 06 00 | 6E 75 | 01 00 | 00 22 | 09 00 |
| | | NTSC4.43 | BE EF | 03 | 06 00 | 5E 72 | 01 00 | 00 22 | 02 00 |
| | | M-PAL | BE EF | 03 | 06 00 | FE 74 | 01 00 | 00 22 | 08 00 |
| | | N-PAL | BE EF | 03 | 06 00 | 0E 71 | 01 00 | 00 22 | 07 00 |
| | | Get | BE EF | 03 | 06 00 | 0D 73 | 02 00 | 00 22 | 00 00 |

| Names | Operation Type | | Header | | | Command Data | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | CRC | Action | Type | Setting Code |
| KEYSTONE V | Get | | BE EF | 03 | 06 00 | B9 D3 | 02 00 | 07 20 | 00 00 |
| | Increment | | BE EF | 03 | 06 00 | DF D3 | 04 00 | 07 20 | 00 00 |
| | Decrement | | BE EF | 03 | 06 00 | 0E D2 | 05 00 | 07 20 | 00 00 |
| KEYSTONE V Reset | Execute | | BE EF | 03 | 06 00 | 08 D0 | 06 00 | 0C 70 | 00 00 |
| WHISPER | Set | NORMAL | BE EF | 03 | 06 00 | 3B 23 | 01 00 | 00 33 | 00 00 |
| | | WHISPER | BE EF | 03 | 06 00 | AB 22 | 01 00 | 00 33 | 01 00 |
| | Get | | BE EF | 03 | 06 00 | 08 23 | 02 00 | 00 33 | 00 00 |
| MIRROR | Set | NORMAL | BE EF | 03 | 06 00 | C7 D2 | 01 00 | 01 30 | 00 00 |
| | | H:INVERT | BE EF | 03 | 06 00 | 57 D3 | 01 00 | 01 30 | 01 00 |
| | | V:INVERT | BE EF | 03 | 06 00 | A7 D3 | 01 00 | 01 30 | 02 00 |
| | | H&V:INVERT | BE EF | 03 | 06 00 | 37 D2 | 01 00 | 01 30 | 03 00 |
| | Get | | BE EF | 03 | 06 00 | F4 D2 | 02 00 | 01 30 | 00 00 |
| VOLUME | Get | | BE EF | 03 | 06 00 | 31 D3 | 02 00 | 01 20 | 00 00 |
| | Increment | | BE EF | 03 | 06 00 | 57 D3 | 04 00 | 01 20 | 00 00 |
| | Decrement | | BE EF | 03 | 06 00 | 86 D2 | 05 00 | 01 20 | 00 00 |
| AUDIO - RGB1 | Set | TURN OFF | BE EF | 03 | 06 00 | FE DD | 01 00 | 30 20 | 00 00 |
| | | Audio1 | BE EF | 03 | 06 00 | 6E DC | 01 00 | 30 20 | 01 00 |
| | | Audio2 | BE EF | 03 | 06 00 | 9E DC | 01 00 | 30 20 | 02 00 |
| | Get | | BE EF | 03 | 06 00 | CD DD | 02 00 | 30 20 | 00 00 |
| AUDIO - RGB2 | Set | TURN OFF | BE EF | 03 | 06 00 | CE DC | 01 00 | 34 20 | 00 00 |
| | | Audio1 | BE EF | 03 | 06 00 | 5E DD | 01 00 | 34 20 | 01 00 |
| | | Audio2 | BE EF | 03 | 06 00 | AE DD | 01 00 | 30 20 | 02 00 |
| | Get | | BE EF | 03 | 06 00 | FD DC | 02 00 | 34 20 | 00 00 |
| AUDIO - Video | Set | TURN OFF | BE EF | 03 | 06 00 | 02 DC | 01 00 | 31 20 | 00 00 |
| | | Audio1 | BE EF | 03 | 06 00 | 92 DD | 01 00 | 31 20 | 01 00 |
| | | Audio2 | BE EF | 03 | 06 00 | 62 DD | 01 00 | 30 20 | 02 00 |
| | Get | | BE EF | 03 | 06 00 | 31 DC | 02 00 | 31 20 | 00 00 |
| AUDIO - S-Video | Set | TURN OFF | BE EF | 03 | 06 00 | 46 DC | 01 00 | 32 20 | 00 00 |
| | | Audio1 | BE EF | 03 | 06 00 | D6 DD | 01 00 | 32 20 | 01 00 |
| | | Audio2 | BE EF | 03 | 06 00 | 26 DD | 01 00 | 30 20 | 02 00 |
| | Get | | BE EF | 03 | 06 00 | 75 DC | 02 00 | 32 20 | 00 00 |
| AUDIO - Component | Set | TURN OFF | BE EF | 03 | 06 00 | 32 DD | 01 00 | 35 20 | 00 00 |
| | | Audio1 | BE EF | 03 | 06 00 | A2 DC | 01 00 | 35 20 | 01 00 |
| | | Audio2 | BE EF | 03 | 06 00 | 52 DC | 01 00 | 30 20 | 02 00 |
| | Get | | BE EF | 03 | 06 00 | 01 DD | 02 00 | 35 20 | 00 00 |

| Names | Operation Type | | Header | | | Command Data | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | CRC | Action | Type | Setting Code |
| MUTE | Set | TURN OFF | BE EF | 03 | 06 00 | 46 D3 | 01 00 | 02 20 | 00 00 |
| | | TURN ON | BE EF | 03 | 06 00 | D6 D2 | 01 00 | 02 20 | 01 00 |
| | | Get | BE EF | 03 | 06 00 | 75 D3 | 02 00 | 02 20 | 00 00 |
| LANGUAGE | Set | ENGLISH | BE EF | 03 | 06 00 | F7 D3 | 01 00 | 05 30 | 00 00 |
| | | FRANÇAIS | BE EF | 03 | 06 00 | 67 D2 | 01 00 | 05 30 | 01 00 |
| | | DEUTSCH | BE EF | 03 | 06 00 | 97 D2 | 01 00 | 05 30 | 02 00 |
| | | ESPAÑOL | BE EF | 03 | 06 00 | 07 D3 | 01 00 | 05 30 | 03 00 |
| | | ITALIANO | BE EF | 03 | 06 00 | 37 D1 | 01 00 | 05 30 | 04 00 |
| | | NORSK | BE EF | 03 | 06 00 | A7 D0 | 01 00 | 05 30 | 05 00 |
| | | NEDERLANDS | BE EF | 03 | 06 00 | 57 D0 | 01 00 | 05 30 | 06 00 |
| | | PORTUGUÊS | BE EF | 03 | 06 00 | C7 D1 | 01 00 | 05 30 | 07 00 |
| | | 日本語 | BE EF | 03 | 06 00 | 37 D4 | 01 00 | 05 30 | 08 00 |
| | | 简体中文 | BE EF | 03 | 06 00 | A7 D5 | 01 00 | 05 30 | 09 00 |
| | | 繁體中文 | BE EF | 03 | 06 00 | 37 DE | 01 00 | 05 30 | 10 00 |
| | | 한글 | BE EF | 03 | 06 00 | 57 D5 | 01 00 | 05 30 | 0A 00 |
| | | SVENSKA | BE EF | 03 | 06 00 | C7 D4 | 01 00 | 05 30 | 0B 00 |
| | | РУССКИЙ | BE EF | 03 | 06 00 | F7 D6 | 01 00 | 05 30 | 0C 00 |
| | | SUOMI | BE EF | 03 | 06 00 | 67 D7 | 01 00 | 05 30 | 0D 00 |
| | | POLSKI | BE EF | 03 | 06 00 | 97 D7 | 01 00 | 05 30 | 0E 00 |
| | | TÜRKÇE | BE EF | 03 | 06 00 | 07 D6 | 01 00 | 05 30 | 0F 00 |
| | | Get | BE EF | 03 | 06 00 | C4 D3 | 02 00 | 05 30 | 00 00 |
| MENU POSITION H | | Get | BE EF | 03 | 06 00 | 04 D7 | 02 00 | 15 30 | 00 00 |
| | | Increment | BE EF | 03 | 06 00 | 62 D7 | 04 00 | 15 30 | 00 00 |
| | | Decrement | BE EF | 03 | 06 00 | B3 D6 | 05 00 | 15 30 | 00 00 |
| MENU POSITION H Reset | | Execute | BE EF | 03 | 06 00 | DC C6 | 06 00 | 43 70 | 00 00 |
| MENU POSITION V | | Get | BE EF | 03 | 06 00 | 40 D7 | 02 00 | 16 30 | 00 00 |
| | | Increment | BE EF | 03 | 06 00 | 26 D7 | 04 00 | 16 30 | 00 00 |
| | | Decrement | BE EF | 03 | 06 00 | F7 D6 | 05 00 | 16 30 | 00 00 |
| MENU POSITION V Reset | | Execute | BE EF | 03 | 06 00 | A8 C7 | 06 00 | 44 70 | 00 00 |

| Names | Operation Type | | Header | | | CRC | Command Data | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Action | Type | Setting Code |
| OSD BRIGHT. | Get | | BE EF | 03 | 06 00 | A8 D5 | 02 00 | 18 30 | 00 00 |
| | Increment | | BE EF | 03 | 06 00 | CE D5 | 04 00 | 18 30 | 00 00 |
| | Decrement | | BE EF | 03 | 06 00 | 1F D4 | 05 00 | 18 30 | 00 00 |
| BLANK | Set | My Screen | BE EF | 03 | 06 00 | FB CA | 01 00 | 00 30 | 20 00 |
| | | ORIGINAL | BE EF | 03 | 06 00 | FB E2 | 01 00 | 00 30 | 40 00 |
| | | BLUE | BE EF | 03 | 06 00 | CB D3 | 01 00 | 00 30 | 03 00 |
| | | WHITE | BE EF | 03 | 06 00 | 6B D0 | 01 00 | 00 30 | 05 00 |
| | | BLACK | BE EF | 03 | 06 00 | 9B D0 | 01 00 | 00 30 | 06 00 |
| | Get | | BE EF | 03 | 06 00 | 08 D3 | 02 00 | 00 30 | 00 00 |
| BLANK On/Off | Set | TURN OFF | BE EF | 03 | 06 00 | FB D8 | 01 00 | 20 30 | 00 00 |
| | | TURN ON | BE EF | 03 | 06 00 | 6B D9 | 01 00 | 20 30 | 01 00 |
| | Get | | BE EF | 03 | 06 00 | C8 D8 | 02 00 | 20 30 | 00 00 |
| START UP | Set | My Screen | BE EF | 03 | 06 00 | CB CB | 01 00 | 04 30 | 20 00 |
| | | ORIGINAL | BE EF | 03 | 06 00 | 0B D2 | 01 00 | 04 30 | 00 00 |
| | | TURN OFF | BE EF | 03 | 06 00 | 9B D3 | 01 00 | 04 30 | 01 00 |
| | Get | | BE EF | 03 | 06 00 | 38 D2 | 02 00 | 04 30 | 00 00 |
| My Screen LOCK | Set | TURN OFF | BE EF | 03 | 06 00 | 3B EF | 01 00 | C0 30 | 00 00 |
| | | TURN ON | BE EF | 03 | 06 00 | AB EE | 01 00 | C0 30 | 01 00 |
| | Get | | BE EF | 03 | 06 00 | 08 EF | 02 00 | C0 30 | 00 00 |
| Message | Set | TURN OFF | BE EF | 03 | 06 00 | 8F D6 | 01 00 | 17 30 | 00 00 |
| | | TURN ON | BE EF | 03 | 06 00 | 1F D7 | 01 00 | 17 30 | 01 00 |
| | Get | | BE EF | 03 | 06 00 | BC D6 | 02 00 | 17 30 | 00 00 |
| AUTO SEARCH | Set | TURN OFF | BE EF | 03 | 06 00 | B6 D6 | 01 00 | 16 20 | 00 00 |
| | | TURN ON | BE EF | 03 | 06 00 | 26 D7 | 01 00 | 16 20 | 01 00 |
| | Get | | BE EF | 03 | 06 00 | 85 D6 | 02 00 | 16 20 | 00 00 |
| AUTO POWER OFF | Get | | BE EF | 03 | 06 00 | 08 86 | 02 00 | 10 31 | 00 00 |
| | Increment | | BE EF | 03 | 06 00 | 6E 86 | 04 00 | 10 31 | 00 00 |
| | Decrement | | BE EF | 03 | 06 00 | BF 87 | 05 00 | 10 31 | 00 00 |
| LAMP TIME | Get | | BE EF | 03 | 06 00 | C2 FF | 02 00 | 90 10 | 00 00 |
| LAMP TIME Reset | Execute | | BE EF | 03 | 06 00 | 58 DC | 06 00 | 30 70 | 00 00 |
| FILTER TIME | Get | | BE EF | 03 | 06 00 | C2 F0 | 02 00 | A0 10 | 00 00 |
| FILER TIME Reset | Execute | | BE EF | 03 | 06 00 | 98 C6 | 06 00 | 40 70 | 00 00 |
| MAGNIFY | Get | | BE EF | 03 | 06 00 | 7C D2 | 02 00 | 07 30 | 00 00 |
| | Increment | | BE EF | 03 | 06 00 | 1A D2 | 04 00 | 07 30 | 00 00 |
| | Decrement | | BE EF | 03 | 06 00 | CB D3 | 05 00 | 07 30 | 00 00 |
| FREEZE | Set | NORMAL | BE EF | 03 | 06 00 | 83 D2 | 01 00 | 02 30 | 00 00 |
| | | FREEZE | BE EF | 03 | 06 00 | 13 D3 | 01 00 | 02 30 | 01 00 |
| | Get | | BE EF | 03 | 06 00 | B0 D2 | 02 00 | 02 30 | 00 00 |